

MASH-Energy Efficiency Requirement Workshop

April 30, 2015



The Pacific Energy Center
851 Howard Street
San Francisco, CA 94103

MASH- Energy Efficiency Agenda

- * Welcome
- * New MASH Requirement for Energy Efficiency (EE)
- * EE Options that Meet the Specific MASH Requirement
 - ASHRAE Level 1 Energy Audits
 - REN and CCA Multifamily Upgrade Programs
 - Utility Multifamily Upgrade Programs
- * Additional Multifamily EE Savings Programs
- * Q&A Panel
- * Closing



The Pacific Energy Center
851 Howard Street
San Francisco, CA 94103



Center for
Sustainable Energy™

The Pacific Energy Center
851 Howard Street
San Francisco, CA 94103

MASH EE Requirement Review

Aileen Lagbao, SCE



CPUC DECISION EXTENDING THE MASH AND SASH PROGRAMS

(D. 15-01-027)

Background

- * Assembly Bill 217 (Bradford, 2013) extended the MASH and SASH programs of the California Solar Initiative with \$108 million in new funding, and set several new goals for the programs.
- * Energy Division Staff Proposal noted that “encouraging EE through the MASH program has benefits to the multifamily low-income community. EE improvements may help property owners realize additional cost savings, which can be passed on to tenants, and can help maximize the benefit of the MASH program to all ratepayers.”
- * On January 29, 2015, the CPUC approved a Decision to revise MASH’s enrollment eligibility requirements, capacity target, job training requirements, incentive levels, and program budget.

MASH EE Eligibility Requirements

- * **Option #1:** Conduct onsite walkthrough energy audit at ASHRAE Level 1 or higher within the past three years
- * **Option #2:** Enroll in either a utility, a regional energy network (REN), a community choice aggregator (CCA), or a federally funded **whole-building multifamily energy efficiency program**



The Pacific Energy Center
851 Howard Street
San Francisco, CA 94103

ASHRAE Level 1 Energy Audits

James Tuleya, PG&E



ASHRAE Level 1 Energy Audits

- * Resources

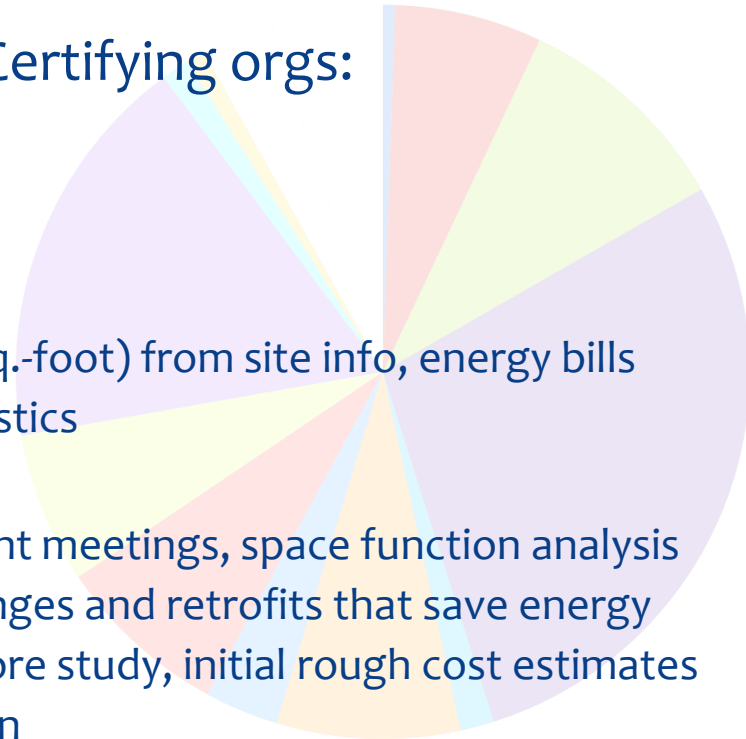
- * ASHRAE, 2011: *Procedures for Commercial Building Energy Audits*, 2nd Ed.
- * Pacific Northwest National Laboratory, 2011: *A Guide to Energy Audits*

- * Available through third-party providers. Certifying orgs:

- * [ASHRAE](#), [AEE](#), [NAESCO](#)

- * ASHRAE Level 1 Energy Audits Include:

- * Preliminary Energy-Use Analysis (PEA)
 - * Calculate current energy performance (kBtu/sq.-foot) from site info, energy bills
 - * Compare to buildings having similar characteristics
- * Level 1 Walk-Through Analysis & Report
 - * On-site walk-through, owner/operator/occupant meetings, space function analysis
 - * Identify no-cost/low-cost O&M procedure changes and retrofits that save energy
 - * Identify potential capital improvements for more study, initial rough cost estimates
 - * Other informational and actionable information





The Pacific Energy Center
851 Howard Street
San Francisco, CA 94103

REN & CCA Multifamily Programs

Heather Larson, Green Building Program Manager, StopWaste for BayREN
Meaghan Doran, Energy Efficiency Program Specialist II, MCE
David Myers, The Energy Network



Bay Area Multifamily Building Enhancements (BAMBE)

Regional Bay REN Multifamily Sub-Program
Led by StopWaste: Energy Council



MULTIFAMILY
PROGRAM



Regional Program

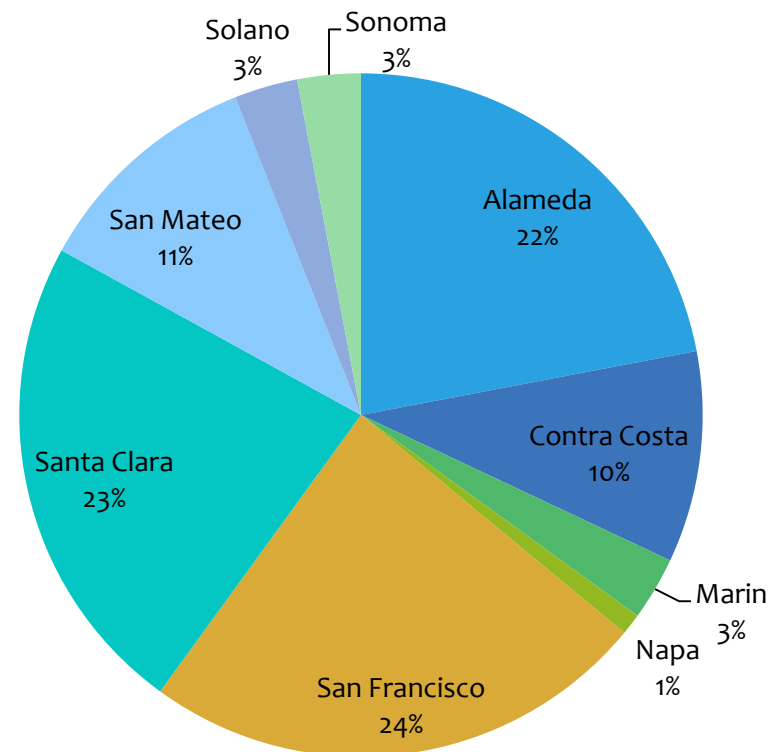
- * 9-county Bay Area
- * Open to all 5+ attached units:
 - * Condos/HOAs
 - * Affordable Housing
 - * Corporate Market Rate Owners
 - * Individual Owners
- * PG&E service
- * Bay Area spans 5 CEC Climate Zones (Zones 1, 2, 3, 4 & 12)



Regional Multifamily Housing Stock

- * According to Census:
 - * ~ 2.8 Million Residential Housing Units (SF + MF) in 9 Counties
 - * ~25% of total are MF 5 or more dwelling units
 - * ~700,000 multifamily units in the Bay Area
 - * ~ 1.7% market penetration of installed BAMBE units to date

Multifamily Housing Distribution by County



BAMBE Offering

Cash Rebates

- * \$750 per dwelling unit*
 - * 10% min whole building performance
- * In-unit, central systems, common area
- * Choose your own contractors

No-Cost Energy Consulting

- * Energy usage analysis & site visit
- * One-stop-shop to connect with incentives & programs
- * Post-installation BAMBE QA site visit



* Rebate amount may be modified for Single Room Occupancies by a unit-equivalency calculation

No-Cost Energy Consulting Process

Initial
Consultation &
Data
Collection

Recommend
Approach &
Identify
Measures

Program
Referral

Select Package
for Rebate



SFEnvironment

No-Cost Energy Consulting Services

- * Data collection completed by participant
 - * Existing building conditions
 - * Energy system details
- * EnergyPro Lite simplified code-compliance software
- * Pre-installation site visit:
 - * Verify existing conditions
 - * Identify any additional opportunities
 - * Combustion safety testing
- * Can take an existing audit report & verify inputs, run in EPL to qualify for rebates

No-Cost Energy Consulting Services

- * 50% and 100% construction verification
 - * verify all equipment is installed properly
 - * any necessary test-out of combustion appliances
- * Reports & documentation
 - * EPL program compliance report listing measures & total savings (pre-installation & post-installation)
 - * ~12 page audit report with customized list of minimum performance specs, recommends longer list of upgrade measures than required for rebate

BAMBE Qualifying Scopes

- * Minimum 10% whole-building modeled savings
- * Target minimum 279 kWh & 30 therms per units to meet program goals
- * At least two hard-installed measures
 - * Fixtures (bulbs, aerators, showerheads) can contribute to savings, if in addition to hard-installed measures
- * At least some in-unit end-use savings
 - * Limits on savings counted from common area, exterior, garage measures

Program Referral – Other Rebates, Services

- * PG&E Multifamily Upgrade Program (MUP)
- * PG&E Multifamily Energy Efficiency Rebates
- * PG&E Energy Savings Assistance
- * Local Energy Watch
- * Water utility programs
- * California Solar Initiative, incl. MASH

Program Referral – Example Financing Options

After rebates, finance remaining balance

- * On-Bill Financing (OBF)
- * On-Bill Repayment (OBR) *pilot for master metered AH*
- * Pay As You Save (PAYS)
- * Property Assessed Clean Energy (PACE)
- * Bay Area Multifamily Capital Advance Pilot
 - * Up to 50% participation loan at 0% IR
 - * EE scopes qualified under BAMBE or PG&E MUP

Installed Impacts for 2013-2014 Program Years



- * Total Rebates received by property owners = **\$6.2 million**
- * **8,340** Units in **124** projects completed
- * **16%** Average Estimated Savings per project
- * Average Estimated Savings Per Unit: **406 kWh & 31 Therms**
- * **3,400,000 kWh (3.4 GWh) & 260,000 Therms** saved per year
- * **3,670 metric tons of CO₂e** reductions over 10 years
 - * (equivalent to GHG emissions from 773 passenger cars or 3.9 million pounds of coal burned)



Case Study

1333 Jefferson St.- Napa County

PROPERTY PROFILE

| | |
|----------------|------------------------------|
| Location | 1333 Jefferson St., Napa, CA |
| Owner | Larry Dondero |
| # of Units | 6 |
| # of buildings | 1 |
| Sq ft | 2,350 |
| Year built | 1930's |



UPGRADE AT A GLANCE

| | |
|-------------------|--|
| Energy Savings | <ul style="list-style-type: none">• 13.2 % overall energy savings• 218 Therms saved• 2,203 kWh saved• 2.7 metric tons CO₂ emissions reduced |
| Rebate Amount | \$ 3,750 |
| Measures Included | <ul style="list-style-type: none">• High Efficiency Condensing Tankless Water Heater• Domestic Hot Water Pipe Insulation• CEE Tier 3 Laundry Washing Machine• Interior & Exterior LED Lighting• Low Flow Faucet Aerators & Showerheads |
| Other Benefits | <ul style="list-style-type: none">• Water savings• Increased safety from improved lighting |

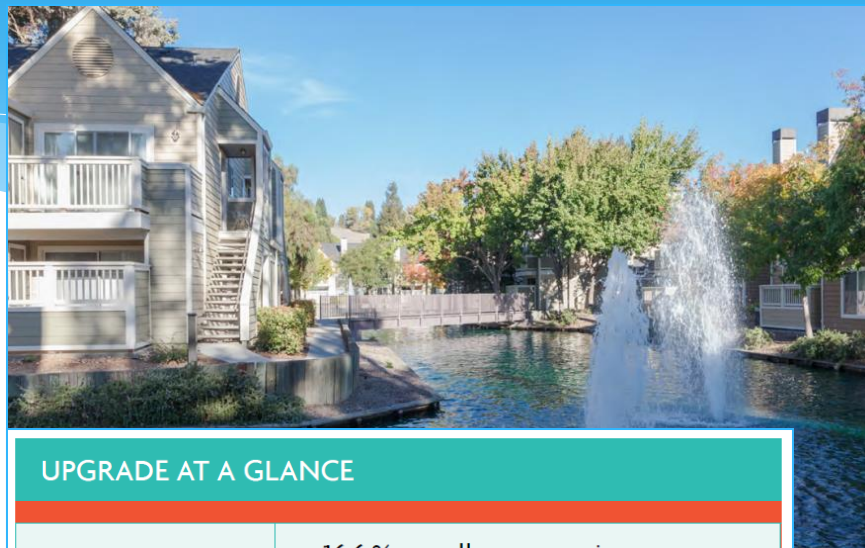


Case Study

Reflections Condominiums - Contra Costa

PROPERTY PROFILE

| | |
|----------------|------------------------------------|
| Location | 205 Reflections Dr., San Ramon, CA |
| Owner | Individuals/HOA |
| # of Units | 296 |
| # of buildings | 21 |
| Sq ft | 220,656 |
| Year built | 1988 |



UPGRADE AT A GLANCE

| | |
|-------------------|--|
| Energy Savings | <ul style="list-style-type: none">• 16.6 % overall energy savings• 17,860 Therms saved• 88,670 kWh saved• 155.8 metric tons CO₂ emissions reduced |
| Rebate Amount | \$ 222,000 |
| Measures Included | <ul style="list-style-type: none">• Energy efficient windows• 9 High-efficiency hot water heaters• Insulate domestic hot water piping• Exterior lighting overhaul• Controls for lagoon pump• Revised pool pumping |
| Other Benefits | <ul style="list-style-type: none">• In-unit noise reduction• Water savings• Increased safety from improved lighting |

Thank You!

Questions?

Heather Larson

Green Building Program Manager

hlarson@stopwaste.org

Enrollment:

Multifamily.EnergyUpgradeCA.org

multifamily@BayREN.org

855-213-2838



Multifamily Program Overview

Meaghan Doran

Energy Efficiency Program Specialist II



Energy Efficiency Programs



Multifamily

Available to market rate and affordable multifamily (4+ unit) properties in Marin, Unincorporated Napa County, and the Cities of Richmond, San Pablo, Benicia, and El Cerrito











Multifamily Program Details

- * No cost energy assessments valued at \$3,000-\$5,000
(Deposit of \$500 or less is reimbursed at project completion)
- * No cost technical assistance to solicit bids and develop a scope of work
- * Rebates averaging 25-60% of total project cost
- * No cost direct install measures for tenant units (\$25 per unit value)
- * Post project quality assurance
- * Minimum 1 year contractor warranty



Incentive Structure

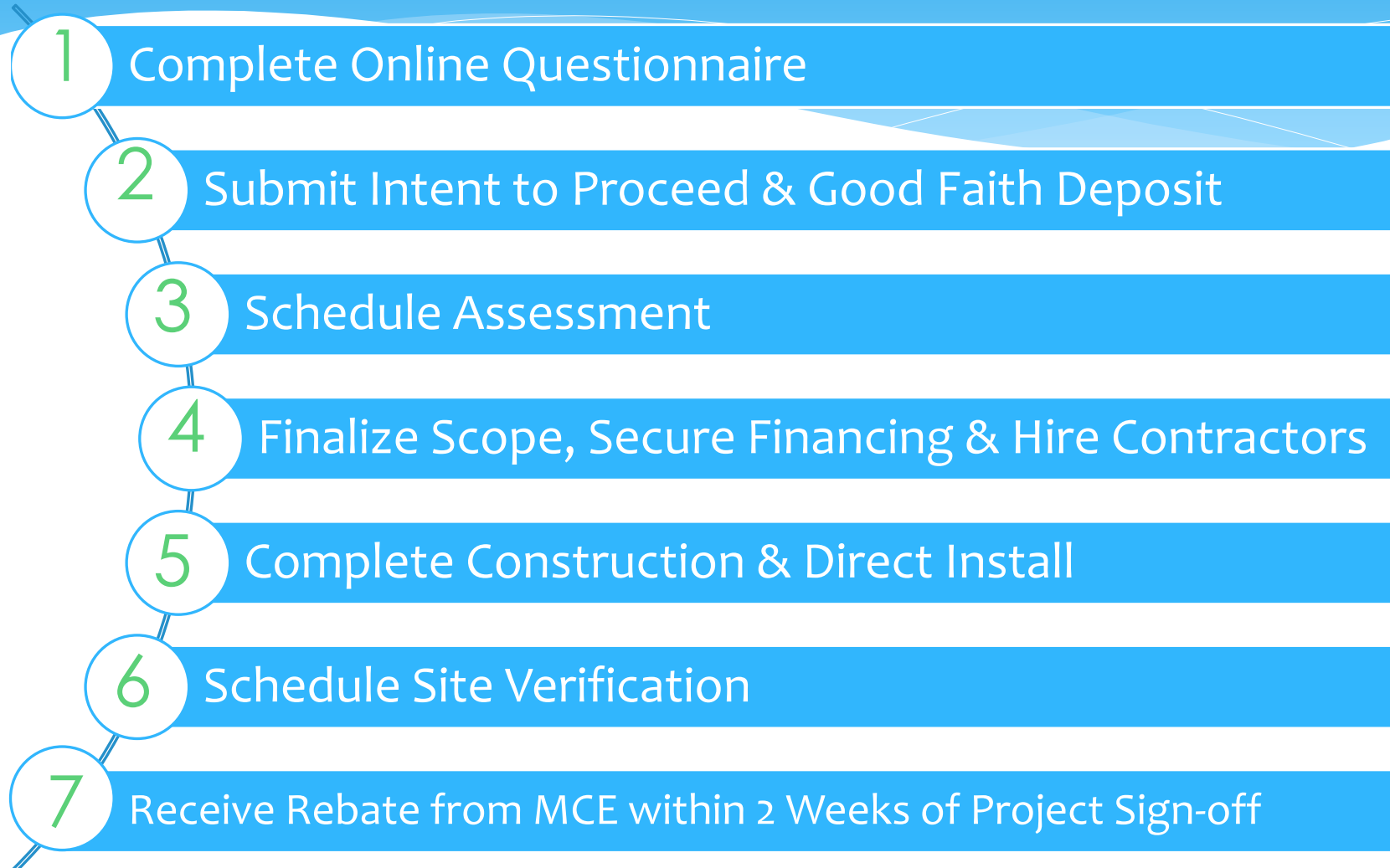
Energy Saving Measure List

| Type | Measure | Units | Points |
|--|--|-----------|-----------------|
|    | LED Lamps, Showerheads, & Aerators | 28 Units | 1 |
|    | Laundry Washer to CEE Tier 3 | 3 Washers | 2 |
|  | Exterior LED Lighting (<i>Small</i>) | Exterior | 1 |
|  | Apartment LED Light Fixtures | 28 Units | 3 |
|  | Variable Speed Pool Pump | 1 Pump | 2 |
|  | Gas Condensing Water Heaters | 2 DWHs | 3 |
| | | | |
| | | | |
| Total Points | | | 12 |
| Total Rebate per Apartment | | | \$900 |
| Total Project Rebate (28 apts) | | | \$25,200 |



| Cumulative Point Total | Incentive per Unit(s) |
|------------------------|-----------------------|
| 2 | \$50 |
| 3 | \$100 |
| 4 | \$150 |
| 5 | \$200 |
| 6 | \$300 |
| 7 | \$400 |
| 8 | \$500 |
| 9 | \$600 |
| 10 | \$700 |
| 11 | \$800 |
| 12 | \$900 |
| 13 | \$1,000 |
| 14 | \$1,125 |
| 15 | \$1,250 |

Multifamily Program Process



Multifamily Direct Install Service

Available at no cost as part of a larger project.



- * Change out incandescent bulbs for LEDs
- * Install high-performance showerheads, kitchen & bathroom faucet aerators
- * Install pipe wrapping
- * Engage tenants around energy and water conservation



San Rafael Project Case Study

70 units

Upgrade measures included:

- * 3 Boiler Replacements
- * Pipe Insulation
- * Direct Install Services (Apartment Lighting, Showerheads, and Aerators)

Total Owner Cost: \$85,000

Incentive Provided: \$7,711

Payback on Total Owner Cost: 3.5 years

Annual Savings:

- * Gas Cost Savings: **\$3,841**
- * In Unit Lighting Cost Savings: **\$12.50 per unit/per year**
- * Water Cost Savings: **\$1,406**
- * Water Savings: **19%**

BEFORE



AFTER



Green Property Loans (On-Bill Repayment)

Finance energy efficiency upgrades with a loan – and then repay that loan on your utility bill!

- ❖ Partnership with River City Bank based in Sacramento
- ❖ \$10,000 - \$265,000 loans
- ❖ 5% interest with 5-10 year payback (rates subject to change)
- ❖ Secured with a UCC-1 fixture filing
- ❖ \$250 non-refundable bank fee
- ❖ Credit subject to bank approval; normal credit standards apply
- ❖ Go to: www.mcecleanenergy.org/wp-content/uploads/RCB_Loan_App.pdf for an application
- ❖ Or “Send a Secure Message” through www.rivercitybank.com
- ❖ Currently available for MCE customers only



Meaghan Doran
MCE Energy Efficiency Specialist II
(415) 464-6039

mdoran@mceCleanEnergy.org

www.mceCleanEnergy.org/energy-savings



The Energy Network Multifamily Program

David Myers
Southern California Regional Director
Build It Green

Eligible Upgrades

Eligible Upgrades

The Energy Network Multifamily Program can help you pay for a wide range of energy and water upgrades for your buildings.



HVAC

- Duct sealing
- Duct insulation
- Duct replacement/retrofit
- Package terminal air conditioner (PTAC)
- Package terminal heat pump (PTHP)
- Room (or through the wall) air conditioner
- Variable refrigerant flow ductless heat pump
- Room (or through the wall) heat pump
- Central natural gas furnace
- Central air conditioner and heat pump
- Radiant/hydronic heating
- Refrigerant charge
- System air flow verification
- System fan wattage verification



Water Heating & Water Efficiency

- Energy Star electric heat pump water heater
- Central system boiler f or space heating
- Solar thermal
- Variable speed circulation pump for DHW
- High-efficiency boilers
- High-efficiency natural gas storage water heater
- On-demand recirculation pump
- Water-Efficient fixtures: showerheads, bathroom and kitchen faucets



Insulation

- Attic insulation
- Wall insulation
- Floor insulation



Envelope & Roof

- Windows
- Cool roof



Appliances

- High-efficiency refrigerators



Lighting

- Interior high-efficiency lighting
- Exterior high-efficiency lighting

Other Measures: Other measures with work papers and or disposition may be considered.

- HVAC
- Water Heating
- Water Efficiency
- Insulation
- Windows
- Appliances
- Lighting

How We Help

TECHNICAL ASSISTANCE



INCENTIVES



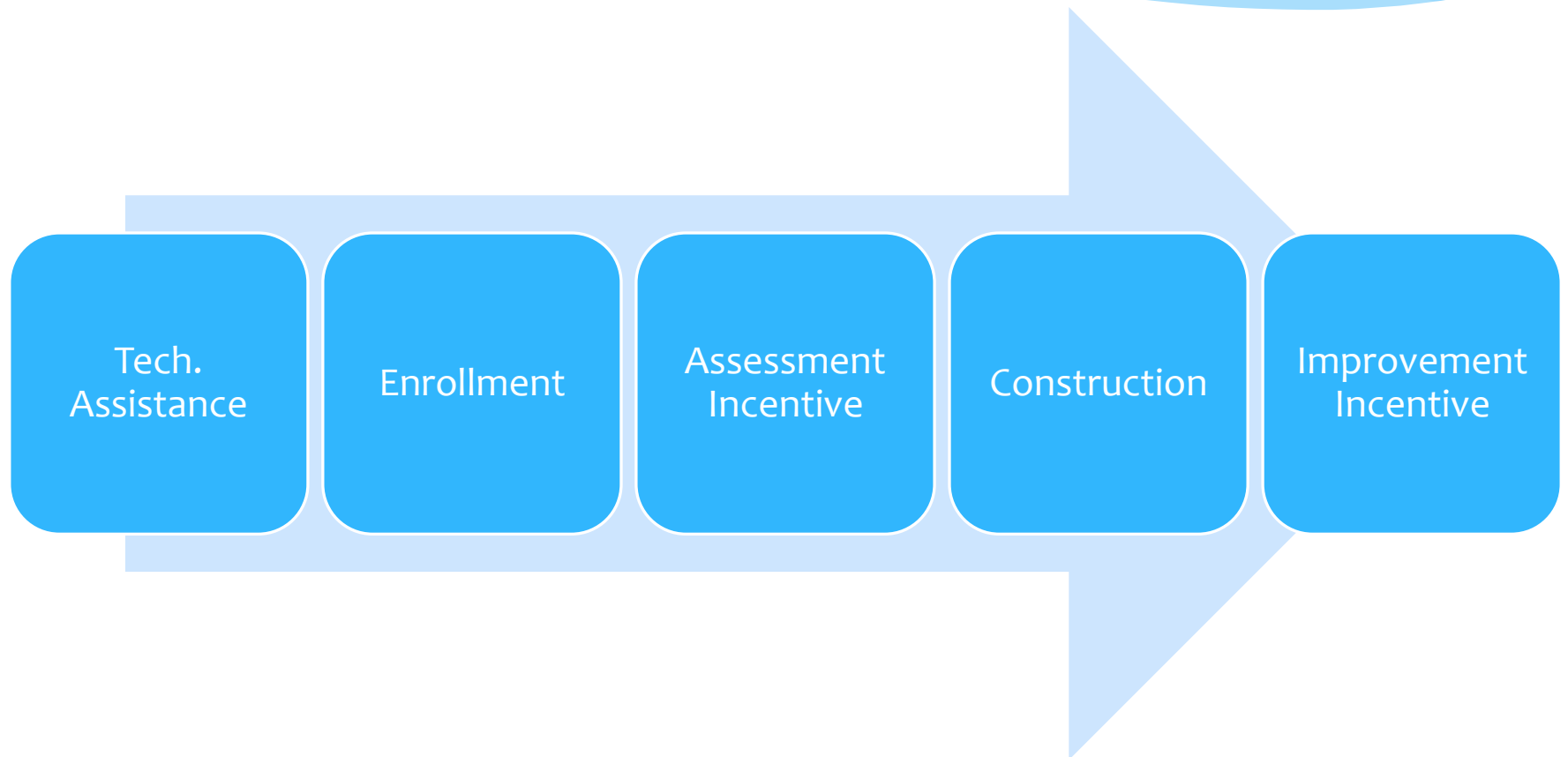
Assessment Incentive

| NUMBER OF UNITS IN BUILDING | INCENTIVE PER PROJECT |
|-----------------------------|-------------------------|
| 3 – 49 UNITS | \$5,000 |
| 50 – 100 UNITS | \$10,000 |
| 100+ UNITS | \$20/UNIT (Incremental) |

Improvement Incentive

| ENERGY IMPROVEMENT | \$ PER UNIT |
|--------------------|-------------|
| 10 - 14.9% | \$550 |
| 15 - 19.9% | \$625 |
| 20 - 24.9% | \$800 |
| 25 - 29.9% | \$1,000 |
| ≥ 30% | \$1,200 |

Participation Process



Contact Information

David Myers

213-688-0070 x301

David@builditgreen.org

Theenergynetwork.com



The Pacific Energy Center
851 Howard Street
San Francisco, CA 94103

Investor Owned Utility (IOU) Multifamily Programs

Karen Contreras, PG&E
For PG&E, SDG&E, SCE



Utility Multifamily Upgrade Programs Contacts

Jose Buendia

Southern California Edison

Office: (626) 302-0714

Email: jose.buendia@sce.com



Karen Contreras

Pacific Gas & Electric

Office: (415) 973-1022

Email: kxct@pge.com



DeDe Henry

San Diego Gas & Electric

Office: (858) 654-1124

Email: DHenry@semprautilities.com



Hugo Gonzalez

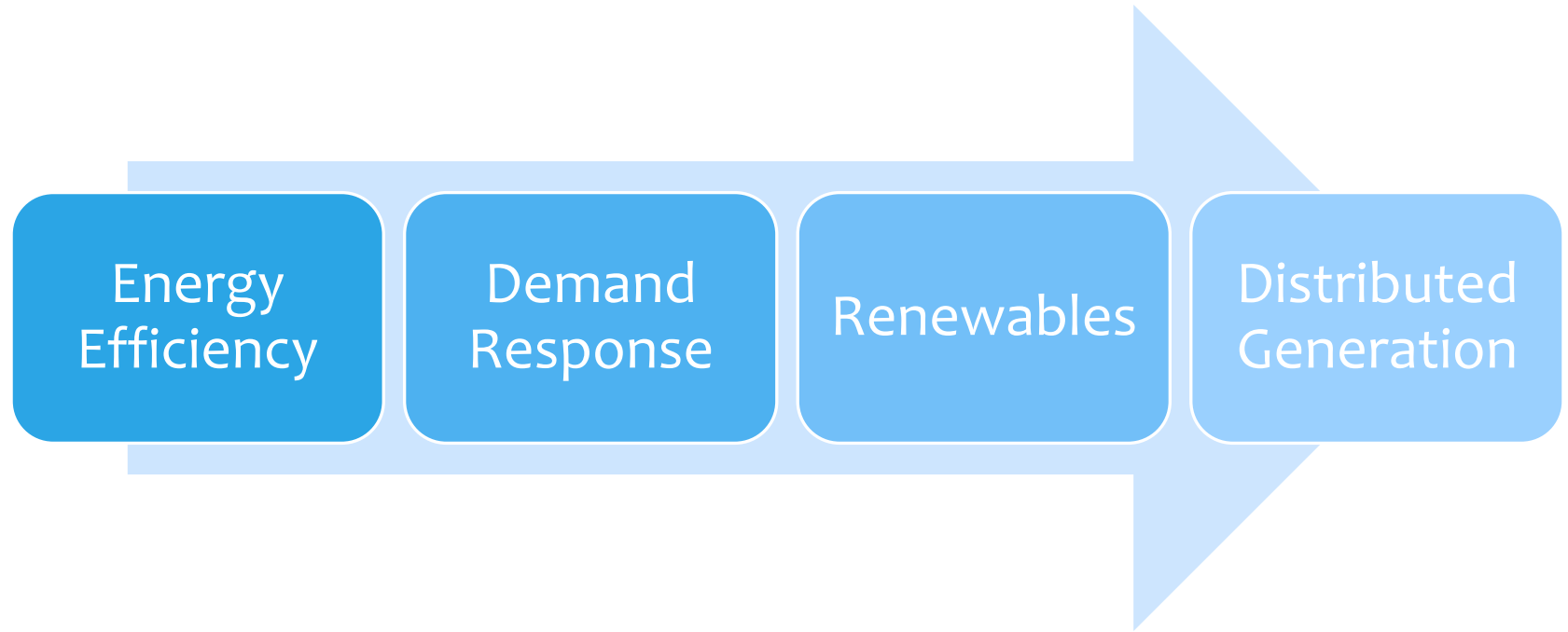
Southern California Gas Co.

Office: (562) 803-7462

Email: egonzalez@semprautilities.com



California Energy Resource Loading Order



Energy Commission's 2003 Integrated Energy Policy Report (2003 Energy Report)

An approach to the services available



Higher Effort/Cost

- Whole Building & Calculated
- Solar

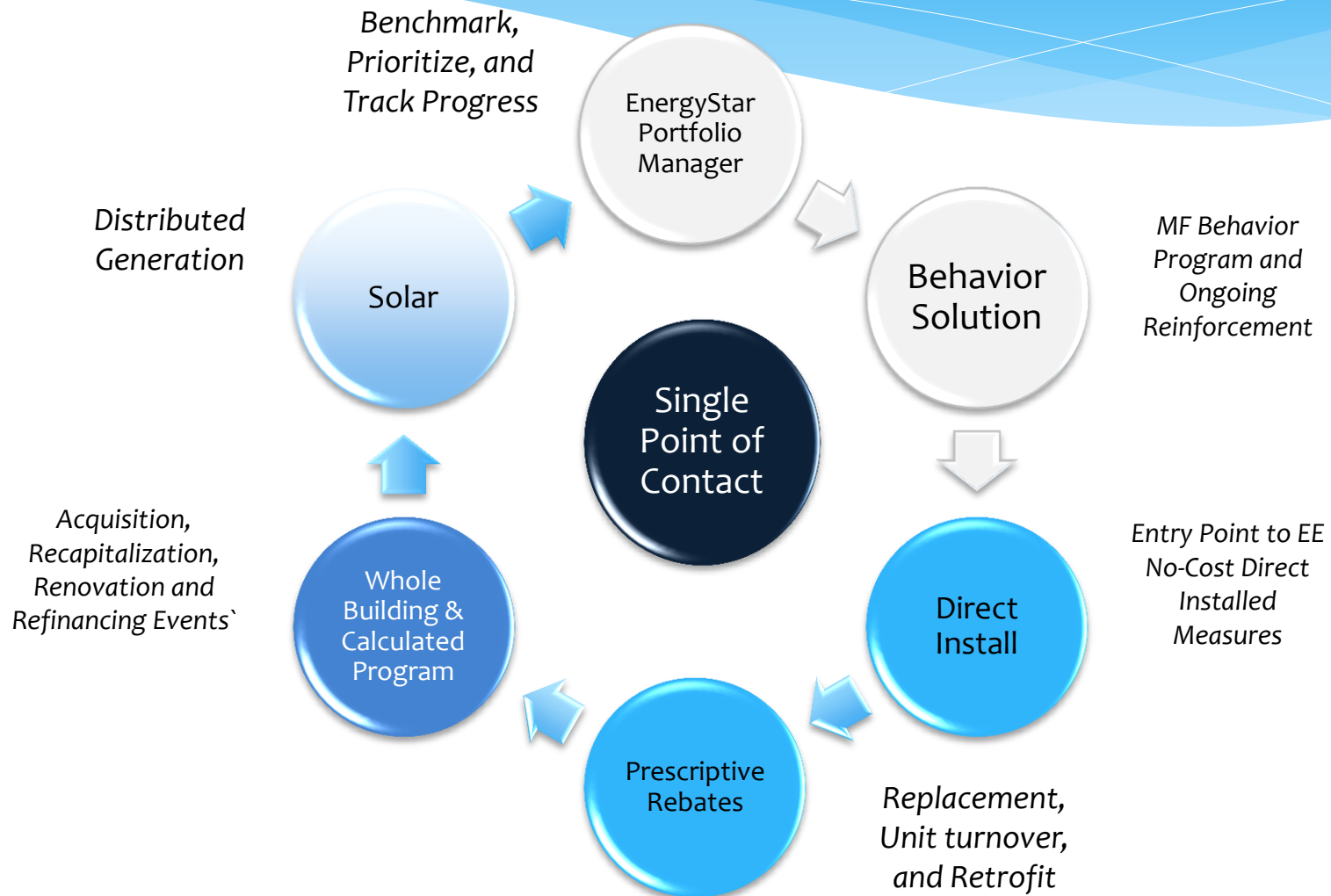
Medium Effort/Cost

- Incentive & Rebates

Lower Effort/Cost

- EnergyStar Portfolio Manager
- Behavior Solutions
- Direct Install

Overall Multifamily Framework



Overview of Statewide IOU Multifamily Offerings

MEETS NEW EE REQUIREMENT FOR MASH:

Multifamily Whole Building Program

- Comprehensive whole building approach with tiered incentives

EE Programs to help you save (but do that do not meet requirements for MASH:

Multifamily Energy Efficiency Rebate (MFEER) Program

- Rebates and Incentives; EEMs available at little or no cost

3rd Party Programs

- No-Cost Direct install offerings

Energy Savings Assistance (ESA) Program / Middle Income Direct Install (MIDI) Program

- No-Cost offerings available for Income Qualified households.

On Bill Financing

- Financing Options Available

Multifamily Whole Building Approach

MEETS NEW EE REQUIREMENT FOR MASH:

Performance-based approach aimed to assist multifamily operators with making informed energy-efficiency decisions

Provides calculated rebates based on whole property/building simulated energy reduction

Supports comprehensive retrofits which are usually conducted during Acquisition, Recapitalization, Renovation and Refinancing Events.

Installations may be implemented by any qualified contractor selected by customer

Multifamily Whole Building Program Benefits

The program offers Energy Consultation, Assessments, and Incentives

Promotes long-term comprehensive energy retrofits to the whole building

Planned rehabs and acquisitions are ideal for deep energy retrofits.

Modeling software allows for more flexible & customizable solutions

Tiered incentive approach is intended to reward participants for realizing deeper energy savings.

Multifamily Whole Building Program Eligibility

Property must receive gas and/or electric service from California IOU

Market-rate and affordable housing properties are eligible

ASHRAE Level 2 Assessment by authorized Rater

Projects must achieve a minimum of 10% modeled savings to be eligible

Scope must include at least 3 eligible energy efficiency measures

Property owner may hire any licensed contractor to perform installations

Other terms and conditions apply, see respective IOUs for complete program rules and requirements.

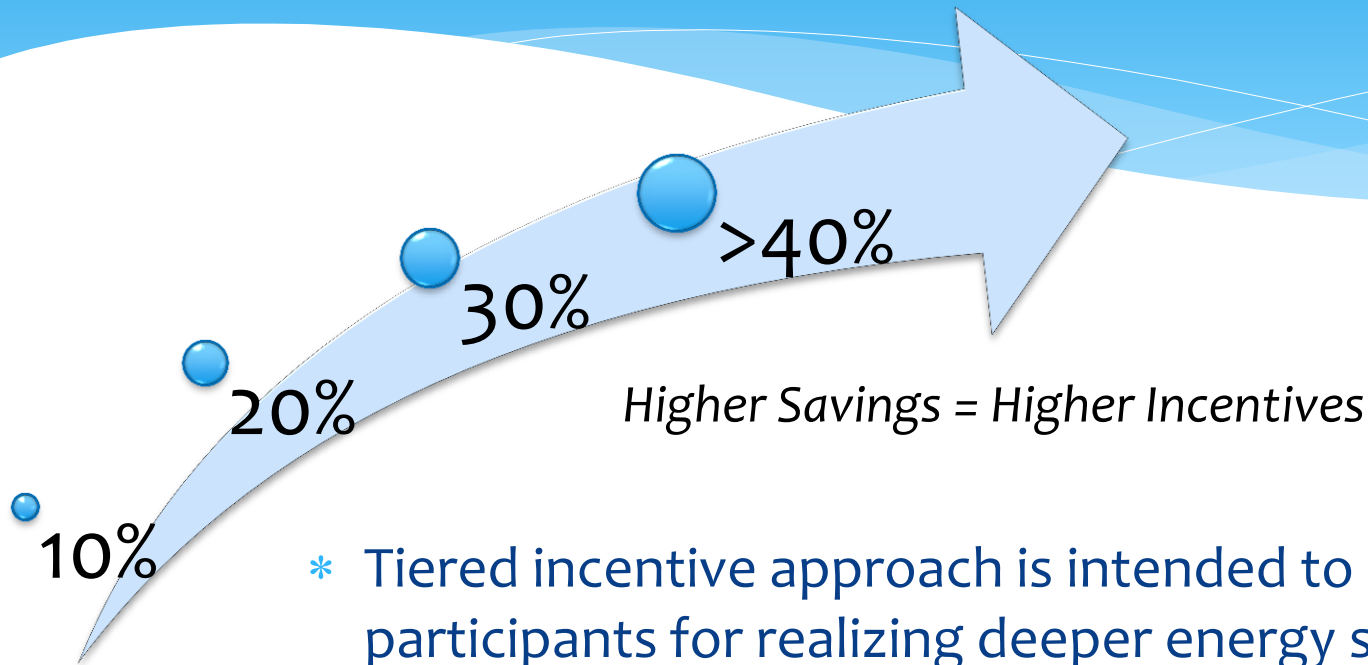
Multifamily Whole Building Program Completion Process

Combustion appliance safety testing is conducted (before & after project completion)

Completed projects are verified by Raters and Inspectors

Rebates are paid upon completion and verification of project

Multifamily Whole Building Program Incentives



- * Tiered incentive approach is intended to reward participants for realizing deeper energy savings.
- * The amount of the incentive is based upon simulated energy savings. Total incentive amount cannot exceed measure and installation cost.
- * Upgrade Incentives vary by utility and range from \$550-\$2,250 per unit



The Pacific Energy Center
851 Howard Street
San Francisco, CA 94103

Additional IOU Multifamily EE Savings Programs

(To help you save but do not meet requirements for MASH)

Karen Contreras, PG&E

For PG&E, SDG&E, SCE



Overview of Statewide IOU Multifamily Offerings

MEETS NEW EE REQUIREMENT FOR MASH:

Multifamily Whole Building Program

- Comprehensive whole building approach with tiered incentives

EE Programs to help you save (but do that do not meet requirements for MASH:

Multifamily Energy Efficiency Rebate (MFEER) Program

- Rebates and Incentives; EEMs available at little or no cost

3rd Party Programs

- No-Cost Direct install offerings

Energy Savings Assistance (ESA) Program / Middle Income Direct Install (MIDI) Program

- No-Cost offerings available for Income Qualified households.

On Bill Financing

- Financing Options Available

Multifamily Energy Efficiency Rebate (MFEER) Program

The MFEER Program offers incentives on a wide variety of energy-saving products and services for both dwelling and common areas - ***some at little or no-cost.****

ENERGY STAR® Light Fixtures

ENERGY STAR® Lamps

LED Lighting

LED Landscape Fixtures

ENERGY STAR® Appliances

ENERGY STAR® HE Clothes Washers

Water saving measures

Storage hot water heaters

Water heater controllers

Pool Heaters

Central Furnaces

and more!



* No-cost offerings include energy-efficient equipment and installation, if applicable. Customers are responsible for any required permit fees and any ancillary charges such as filters, drain covers, electrical upgrades, etc. Program Rules, Terms and Conditions apply.

MFEER Program Eligibility

Who's Eligible?

- Existing multifamily complexes.
New construction does not qualify.
- Rebates are available for:
 - Dwelling and common areas of apartment complexes
 - Common areas of condominium complexes, mobile home parks

Examples of Common Area Locations

- Leasing offices
- Community Centers
- Recreation Rooms
- Laundry Rooms
- Fitness Centers
- Garages/Carports
- Breezeways/Walkways

Income Qualified Energy Efficiency Programs

The **Energy Savings Assistance (ESA) Program** and **Middle Income Direct Install (MIDI) Programs** are designed to assist income-qualified households conserve and reduce their energy costs by replacing their old inefficient equipment with new energy-efficient ones.

☐ Available No-Cost Solutions

- | | |
|---|--|
| <input type="checkbox"/> In-Home Energy Education | <input type="checkbox"/> Low-flow Shower heads and Aerators |
| <input type="checkbox"/> Smart Power Strips | <input type="checkbox"/> Water Heating and Appliances |
| <input type="checkbox"/> Lighting | <input type="checkbox"/> Insulation |
| <input type="checkbox"/> Refrigerator Replacement | <input type="checkbox"/> Infiltration & Space Conditioning |
| <input type="checkbox"/> Room Air Conditioner | <input type="checkbox"/> Minor home repairs associated with infiltration |
| <input type="checkbox"/> Evaporative Cooler | <input type="checkbox"/> <i>and more!</i> |

Program Rules, Terms and Conditions apply.

Multifamily 3rd Party Direct Install Programs

On-Demand Efficiency (Re-circulation Loops for Central Domestic Water Heaters)

- Installation of On-Demand Intelligent Pumps in central domestic hot water systems with re-circulation loops in multifamily buildings to help reduce natural gas consumption.

Energy Smart and Multifamily Home Tune Up

- Qualifying owners and managers of multifamily buildings are provided with no-cost energy audits, products and their installation

Multifamily Heat Pump Program

- Targets Multifamily residents who have heat pumps with an electric resistance back-up heat source. Each customer with a heat pump will have both a Western Cooling control and Harrell Heat pump control installed.

Multifamily Cooling Optimizer Program

- Benefits include: precise diagnostics, coil cleaning, refrigerant adjustments and airflow improvements at no cost for eligible PG&E customers.

** IOU specific programs. Terms and Conditions apply.*



Center for
Sustainable Energy™

The Pacific Energy Center
851 Howard Street
San Francisco, CA 94103

Q&A

